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CALCULUS.

320. Proposed by J. F. LAWRENCE, Stillwater, Oklahoma.

Show that, if $u=1+A_1x+\frac{1}{2}!A_2x^2+\frac{1}{3}!A_3x^3+\dots$ where the quantities A are connected by the relation $A_m=mA_{m-1}-\frac{1}{2}(m-1)(m-2)A_{m-3}$, then $\log[u(1-x)^{\frac{1}{2}}]=\frac{1}{2}x+\frac{1}{4}x^2$. [From Forsyth's *Differential Equations*, p. 48.]

321. Proposed by ARTEMAS MARTIN, Ph. D., LL. D., United States Coast and Geodetic Survey Office, Washington, D. C.

To a person in a boat at the center of a circular pond the bottom appears to be perfectly level. What is the actual form of the bottom of the pond, the depth of the water at the center being a feet, and the distance of the eyes of the observer from the surface of the water being b feet. [From the *Mathematical Visitor*, Vol. 2, No. 2, p. 62.]

MECHANICS.

267. Proposed by PROFESSOR G. H. LIGHT, Purdue University, Lafayette, Indiana.

A parabolic curve is placed in a vertical plane with its axis vertical and vertex downwards, and inside it, and against a peg in the focus, and against the concave arc, a smooth uniform and heavy beam rests; required the position of equilibrium. [From Bowser's *Mechanics*, Ex. 37, p. 96.]

268. Proposed by W. J. GREENSTREET, M. A., Editor of The Mathematical Gazette, Stroud, England.

ABC and ADE are two uniform congruent wedges, each of weight w . $B=D=90^\circ$. At B and D they are smoothly hinged to a horizontal table. The bases AB , AC all but meet at A , the common foot of two rough inclined faces AC , AE . A rod, weight W , length $2l$, reclines horizontally and symmetrically with an end on each inclined face. Find the conditions of equilibrium.

NOTES AND NEWS.

The winter meeting of the Chicago section of the American Mathematical Society was held in Chicago on Friday and Saturday, December 28, 29, 1911. There were fifty-seven in attendance upon the various sessions, including forty-three members of the Society. Seventeen papers were read in the three sessions and a most enjoyable time was spent at the dinner on Friday evening at the Quadrangle Club. S.

Professor J. McKeen Cattell, Columbia University, lectured, on January 22, before the Senate of the University of Illinois, on the subject of University Administration. Professor Cattell holds the view that administrative officers, including the President of the University, should not receive any larger salaries than the most competent professors are paid. He would also put the emphasis on good men rather than on fine buildings and grounds. M.